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### REMARKS

Initially, applicants note that the Office Action summary sheet incorrectly identifies claims 1-74 as pending in this application. Claims 1-29 were canceled by preliminary amendment filed January 3, 2002. Accordingly, claims 30-74 are pending.

Applicants also note that the Examiner has objected to the drawings filed on November 4, 2002, by checking the box on the Office Action Summary sheet. However, the body of the Office Action contains no explanation of that objection. On or about November 4, 2002, applicants filed a responsive amendment. With that amendment, applicants submitted a corrected drawing sheet for Fig. 4, a marked up copy of Fig. 4 showing the corrections made to the reference numerals, and a discussion and argument detailing why Fig. 4 was now correct and in compliance with the statute and rules. Applicant also amended the specification to bring Fig. 5 into compliance with the statute and rules. **The Examiner is requested in his next communication to either approve the drawings as filed on November 4, 2002, or to provide a detailed explanation of why those drawings are objectionable.** Applicants stand ready to correct any defect in the drawings.

### REQUEST FOR RECONSIDERATION OF ELECTION REQUIREMENT

In compliance with 37 CFR §§1.144 and 1.181, applicants hereby request reconsideration of the election requirement now made final by the Examiner. Applicants understand that this request must be made to preserve applicants' right to petition the Commissioner to reverse a requirement that applicants believe to be unjustified and improper.

Responsive to applicants' request that he provide reasons supporting the 16-way species election requirement, the Examiner has now provided the following:

The Examiner believes the sixteen different species to be logical and compliant with the guidelines of the M.P.E.P.

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Numerous species are clearly mutually exclusive. For example, a) Species I, e.g., claims 30, 48: Capacitor device with nitride silicon-containing barrier layer, which is different species compare with b) Species II, e.g., claim 31: Computer system. See Fig. 5. Another example, c) Species III, e.g. claims 32-39, 40, 41, and 42: Device with a silicon-containing barrier, which is different Species compare with d) Species IV, e.g., claims 43-47: A semiconductor device with transistor structure having a silicon-containing barrier layer and further on.

The first sentence above simply states the Examiner's "belief" and his ultimate conclusion. It contains no facts or reasoning. The second sentence also states a conclusion ("clearly mutually exclusive") and contains no reasoning. The Examiner then proceeds to provide just two examples, a) compared to b) and c) compared to d), that he characterizes as "different species." However, "different" is not the test.<sup>1</sup> MPEP §806.04(f) states that, "claims to be restricted to different species must be mutually exclusive." The MPEP then goes on to describe what "mutually exclusive" requires, namely that "one claim recites limitations which ... are found in a first species but not in a second, while a second claim recites limitations disclosed only for the second species and not the first."

Looking to the Examiner's first example, the claims in "Species I" recite, *inter alia*, a "primarily nitride silicon-containing barrier layer" comprising a "silicon-containing material" (claim 30) and "a silicon-containing material" that has been reacted "to form a barrier layer (claim 48)." Similarly, the claim in "Species II" (claim 31) recites "a silicon-containing barrier layer" comprising a "silicon-containing material." While the other wording in these claims is not identical, they are certainly not "mutually exclusive" species as they share commonly-recited features. Likewise, the claims in "Species III" recite, *inter alia*, "a barrier layer formed from a silicon source" (claim 32), and "a silicon-containing material" that "form[s] a barrier layer" (claims 40 and 42). Similarly, the claims in "Species IV" also recite "a silicon-containing material" that "form[s] the barrier layer." Again, these "species" are certainly not mutually exclusive as they share commonly-recited features.

<sup>1</sup> Indeed, "different" cannot be the test because applicants are required by statute and rule to provide differentiation between each and every claim that is filed. Carried to its logical (but absurd) conclusion, every claim in a patent application could then be considered to be directed to a different invention.

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Furthermore, according to the MPEP §806.03, restriction is not proper where the claims are but different definitions of the same disclosed subject matter, varying in breadth or scope of definition. Numerous of the identified species are related to the same disclosed subject matter. For example, claims 30 and 32 may define the invention using words of different scope, but both still recite the presence of a barrier layer form a silicon source. Claims can include more than one of the disclosed embodiments within the breadth and scope of the chosen language.

Applicants also submit that the requirement is improper as, at least in some instances, it equates claims to species. This practice is impermissible according to MPEP 806.04(e) that clearly states that species are not claims. Species are specific embodiments of an invention. For example, in the present application, Fig. 1 illustrates a semiconductor device while Fig. 5 illustrates a computer system. Claims, on the other hand, are definitions of inventions. It appears that the Examiner has largely required applicants to elect specific claims rather than mutually exclusive species when looking at the grouping of the so-called "Species." The Examiner has stated that Species I is drawn to claim 30 and used the preamble for a description of the Species. The Examiner proceeds to do this for each independent claim having a slightly different preamble. This is not in compliance with the MPEP.

The claims in the present application are presented in a form that is analogous to combination/subcombination product claims. In order to justify restriction of the 16 named species, the Examiner must demonstrate that the combination claims are patentable without the claimed subcombination. The Examiner has not shown this to be true, and therefore for these additional reasons, the election requirement is improper and should be withdrawn.

#### CLAIM REJECTIONS

In the Office Action, the Examiner rejected claims 32, 40, and 42 under 35 USC §112, ¶2 as being indefinite. The Examiner has asserted that process limitations in

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product claims cannot impart patentability to the product. No other basis is stated to support why the claims are indefinite.

The Examiner's position that process language in a product claim *ipso facto* renders such claim indefinite is simply wrong. Product-by-process claims are but one example of the legally accepted use of process terms in product claims, and the Examiner has recognized this by his citation to numerous cases. Further, courts have explicitly held that product claims may include process language to wholly or partially defined the claimed product. See, e.g., *In re Luck*, 177 USPQ 523 (CCPA 1973). If the Examiner persists in this ground of rejection, he is requested to specifically point out what language renders the claims indefinite and why this is so.

Also in the Office Action, the Examiner rejected claims 32-42 under 35 USC §103 as unpatentable over Huang et al. Huang et al. disclose a conventional semiconductor fabrication method to form a dielectric structure. A dielectric layer 120 is formed over an electrode 100 by converting a primitive oxide layer 110/110a using a nitridation process. Then a layer of silicon nitride 130 is formed over the dielectric layer 120. The layer of silicon nitride endures a second nitridation process to remove any punctures 132 in the silicon nitride layer 130, thereby producing a smooth silicon nitride layer 130a. The layer of silicon nitride 130a and dielectric layer 120 form a dielectric structure over the electrode 100.

In rejecting the claims, the Examiner stated that the process language contained in the claims was given no patentable weight, citing to several product-by-process cases decided by the courts for the proposition that it is the claimed product that must structurally distinguish over the prior art. Applicants submit that the claims as amended recite structure that is not taught or suggested by Huang. Basis for the amendments to independent claims 32, 40, and 42 may be found at page 5, line 10 of the specification, as well as Fig. 1A as filed and accompanying descriptive text.

Huang does not teach or suggest a device comprising a substrate having at least one semiconductor layer, a semiconductor device comprising an electrode proximate to the substrate, and a barrier layer on the electrode. Rather, Huang describes an electrode 100 having a dielectric layer 120 thereon. Huang's silicon nitride layer, which Huang

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does not characterize as a barrier layer and which the Examiner has not established by evidence to function as a barrier layer, is on dielectric layer 120, not electrode 100. Thus, while applicants disagree with the Examiner's unsupported assertion that layer 130 of Huang comprises a barrier layer, such is immaterial as Huang does not teach or suggest the basic combination of elements now recited in independent claims 32, 40, and 42.

Further, with respect to dependent claims 33-34 and 38-39, the Examiner makes unsupported assertions as to the state of the art and what those skilled in this art would have considered to have been obvious at the time the invention was made. The Examiner is reminded that 37 CFR §1.104(d) requires the citation of prior art references in support of a rejection based on anticipation or obviousness. Further, 37 CFR §1.104(d)(2) requires supporting evidence, either in the form of a citation to a prior art reference or an affidavit, when such a rejection is made. Applicants challenge the Examiner's assertions and submit that he has not made out a prima facie case for obviousness with respect to the subject matter of these claims.

For all of these reasons, applicants submit that: (1) the election requirement is not well taken and should be withdrawn; (2) the corrected drawing figures previously filed are in compliance with the statute, and (3) claims 32-42 as amended are patentable over Huang et al. Early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,

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